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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,056	12/31/2001	Amnon Silverstein	10010658	1798

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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Fort Collins, CO 80527-2400

EXAMINER

RAHMJOO, MANUCHER

ART UNIT	PAPER NUMBER
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2676

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/040,056	Applicant(s) SILVERSTEIN, AMNON	
	Examiner Mike Rahmjoo	Art Unit 2676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 24-35 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Newly submitted claims 24 and 31 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claim 24 recites "re- sampling said image in a pattern that matches a sub- pixel configuration of said display in a physical location and color to determine intensity values for each said sub- pixels" is classified in class 345/ 672 and claim 31 recites "down sampling said image in a pattern that matches a sub- pixel configuration of said display in a physical location and color to determine intensity values for said sub- pixels, wherein said down sampling comprises discarding color information in a sample point if the color information does not correspond to a display capability of a sub- pixel to which said sample point is mapped" is classified in 345/660. Said limitations are different from applicant's original claim which recites" mapping a sub- pixel of a display to a region of said image, said sub- pixel operable to display a first color of a plurality of colors" currently classified in 345/613.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 24- 35 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16- 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szelliski et al US Patent 6,009,190, hereinafter, Szeliski in view of Martin et al (US Patent 6,714,206, hereinafter, Martin).

As per claims 16 and 21 Szeliski teaches accessing said image (see for example column 9 lines 13- 15 for localizing results to sub- pixel precision corresponding to sub- pixels of an image), said image sampled at a higher spatial resolution than the spatial resolution of said display see for example figures 2- 7 column 13 lines 27- 31; based on intensity of said first color in said region of said image(the pseudocolor associated with each **pixel inside**), calculating an intensity value (matching the face color id tag of the triangle) for said first color to be displayed in said sub- pixel of said display, wherein said region comprises an intensity value for each of said plurality of colors see for example column 29 lines 54- 67 and column 20 lines 20- 43 wherein **average color** corresponding to a **pixel location** in a **triangle** along with

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color or intensity is used; and rendering said image on said display, based on said calculated intensities see for example column 27 lines 62- 67 and column 28 lines 1- 8 and column 32 lines 5- 9.

However, Szeliski does not teach mapping a plurality sub- pixels of said display to corresponding regions of said image, wherein each sub- pixel of said display is mapped to a unique region of said image.

As to the broadest reasonable interpretation by examiner, Martin teaches mapping a plurality of sub- pixels (see for example column 5 line 61) of said display to corresponding regions of said image, wherein each sub- pixel of said display is mapped to a unique region of said image see for example the abstract and column 5 lines 60- 62 and figures 9a- b and claim 1. Martin also teaches calculating the sub- pixel intensity and color see for example the abstract and column 4 lines 20-22 and figures 9 a-b; and rendering said image on said display based on said calculated intensities see for example the abstract, claim 1 and figures 9.

It would have been made obvious to one of ordinary skilled in the art at the time the invention was made to incorporate the teachings of Martin into Szeliski to use logical pixels (a center sub- pixel and its surrounding sub- pixels) which allows and improves image quality and therefore offers an state of the art device to the user with higher degree of reliability and precision see for example 3 lines 5- 30.

As per claim 17 Szeliski teaches averaging the intensity value of said first color over a plurality of regions neighboring said region of said image, wherein each of said areas maps to its own plurality of regions see for example column 30 lines 20- 21.

As per claim 18 Szeliski teaches based on the intensity of said first color in said region of said image, calculating an uncompensated intensity value for said first color (computation of intensity through triangles with id tags) see for example column 29 lines 57- 67 and figure 31; and calculating an error for each of the rest of said plurality of colors within said region see for example column 11 lines 44- 56; and storing said errors (registration of errors) for said rest of said colors for processing further regions of said image see for example column 32 lines 43- 45; and calculating a compensated intensity value for said area (compensation through de-ghosting; a method for improving quality of image mosaics see for example column 32 line 37), based on said uncompensated intensity value and errors which were calculated for said first color when processing other image regions see for example column 32 lines 54- 58.

As per claim 19 calculating said errors for said first region (see for example column 11 lines 44- 56) when processing a region for which uncompensated values are calculated for other colors of said plurality see for example column 29 lines 57- 67 and figure 31.

As per claim 20 filtering said image prior to calculating the intensity value of said sub-pixel, thereby producing an image with the same color scheme as said display see for example column 29 lines 18- 20.

As per claim 22 Szeliski teaches based on the intensity of said first color in said plurality of regions of said image, calculating an intensity value for said first color see for example column 29 lines 54- 67; and calculating an error for said first color see for example column 11 lines 44- 56; and propagating said error for said first color for

processing further regions of said image see for example column 32 lines 40- 42.

As per claim 23 Szeliski teaches using in the intensity value calculating an error that was propagated when processing another sub- pixel for said first color see for example column 12 lines 48- 50.

Response to Arguments

Applicant's arguments filed 03/21/2005 have been fully considered but they are not persuasive.

As per applicant's remarks on page 9, applicant argues that "Szeliski does not teach mapping a plurality of sub- pixels of said display to corresponding regions of said image, wherein each sub- pixel of said display is mapped to a unique region of said image" and that "Martin does not teach mapping each sub pixel of said display to a unique region of said display".

Examiner respectfully disagrees.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As to the broadest reasonable interpretation by examiner, Martin clearly teaches mapping each sub pixel of said display to a unique region (mapping of sub-pixels of a Pentile matrix to frame numbers wherein the frame numbers are established in a 2-by-

2 pattern of 4 physical pixels as corresponding to a unique region) of said display see for example the abstract and column 5 lines 60- 62 and figure 9a and claim 1.

Inquiry

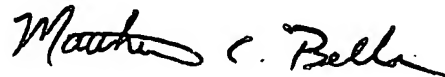
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Rahmjoo whose telephone number is (571) 272-7789. The examiner can normally be reached on 6:30- 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272- 7778. The fax phone number for the organization where this application or proceeding is assigned is (703) 872- 9306 for regular communications and After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-4357.

Mike Rahmjoo

April 12, 2005



**MATTHEW C. BELLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600**